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Evolution, roots and influence of the literature of Sharing Economy and its relevance in Innovation studies. A bibliometric account

Rita Margarida de Sousa Seipião Lopes Jerónimo

Supervisor: Aurora A.C. Teixeira

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Bio

Rita Margarida de Sousa Seipião Lopes Jerónimo was born on 19th May 1992, in Abrantes, Portugal. She graduated in Computing Engineering and Medical Instrumentation by the Porto School of Engineering (ISEP) in 2014. Currently, she is attending the Master Program in Innovation Economics and Management at the Faculty of Economics of the University of Porto.

At this moment, she is working as a software engineer in a technological consultancy enterprise.

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Abstract

Sharing Economy (SE) is a novel and still fuzzy scientific field. To clarify its roots, boundaries and influence we undertook a quantitative/bibliometric account. Such quantitative overview complements more qualitative accounts and provides readers with a comprehensive overview of the field. Based on 199 documents published in sources indexed in the WoS and Scopus, we constructed 3 main databases: the core database containing the 199 documents; the 'roots' database (containing 6863 references to the 199 documents); and the 'influence' database (which included 470 documents indexed in Scopus and WoS that cite some of the 199 published documents).

Published studies on SE address mainly the topic 'Behavioral, cultural, social impacts and ethical issues' (39%), followed by 'Networks/ cooperation/ collaborative patterns' (18%) and 'Business models' (17%). 'Technological implementation/ management' and 'Networks/ cooperation/ collaborative patterns' registered a considerable dynamism in the last two years (2015-2016). The published papers on SE empirically address several business areas, most notably 'Environment/ Sustainability', 'Transports', 'Hospitality/ Tourism', and 'Technology' (including technological based firms/ businesses/ platforms), the latter encompassing a higher number of studies. Although the bulk (70%) of the studies do not envisage a positive or negative perspective of SE, those that do mostly focus on the positive perspective related to sustainability, convenience, availability, monetary savings, and expanded mobility options. The very few studies that highlight potential negative aspects of SE deal with issues related to international licensing and regulation, risk attitudes related to participation in the sharing economy, the (lack of) quality in services supplied to the customer, and bankruptcy of incumbent firms, employment losses and increases in temporary/short term employment contracts. The literature of SE is mainly of conceptual and discursive nature with the share of empirical studies, albeit increasing, still very small (less than 30%).

In terms of scientific roots, Russell Belk a professor of Marketing at York University (Canada), and two practitioners, Rachel Botsman (founder of Collaborative Lab, USA) and Richard Rogers (entrepreneur and the president of Redscout Ventures, USA) are the founding parents of the SE approach. *What's Mine Is Yours: The Rise of Collaborative Consumption* (a book written by Rachel Botsman and Roo Rogers) is the most cited source by SE literature constituting one of its scientific roots. The article published in *Journal of Business Research* by Russel Belk ("You are what you can access: Sharing and collaborative consumption online") is another important scientific root. Half of the total journal citations by the SE literature is made to outlets from the business, management and accounting fields, particularly the Journal of Consumer Research. The roots of SE literature have a multi-disciplinary trait benefiting from a vast crossroad of concepts

and analytical methods from the 'Business', 'Management and Accounting', 'Computer Science', and 'Hospitality, Leisure, Sport and Tourism'.

Regarding the scientific influence of the SE literature, the vast majority of studies that cite it are from 'Computer Science' (56%) and 'Business, Management and Accounting' (17%). The most influential SE documents are included in the topic 'Business models related issues' and explore new business models. These are: "You are what you can access: Sharing and collaborative consumption online" (by Russell Belk, Journal of Business Research, 2014), and "Ride On! Mobility Business Models for the Sharing Economy" (by Boyd Cohen and Jan Kietzmann, Organization and Environment, 2014).

Although SE literature is largely self-referential, with the scope of scientific influence being confined mainly to the areas and sources where SE belongs/are published, the geographical influence of SE literature is quite widespread (it spans through 47 different countries), with USA (19%), the UK (10%), Germany (10%), China (8%), Australia (8%), and Switzerland (5%) at the forefront.

Keywords: Sharing Economy; Collaborative Economy; Collaborative Consumption; Bibliometrics; Roots; Scientific influence.

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1. Introduction

Sharing Economy (SE) is seemingly an emerging topic that covers several areas of research, most notably hospitality (Cheng, 2016), tourism (Zervas, Proserpio and Byers, 2016), transportation (Cohen and Kietzmann, 2014), and environment sustainability (Fremstad, 2017). Such areas are experiencing a tremendous growth and have emerged as innovative alternative suppliers of goods and services traditionally provided by long-established industries (Zervas et al., 2016).

Beside 'Sharing economy', 'collaborative consumption' and 'peer to peer economy' are among the most popular terms to describe SE. This new form of consumption is labeled as the access to underutilized goods and services, which prioritizes utilization and accessibility over ownership (Cheng, 2016). Some authors characterize SE by non-ownership, temporary access, and redistribution of material goods or less tangible assets such as money, space, or time (Kathan, Matzler and Veider, 2016; Habibi, Davidson and Laroche, 2017). This concept is based on information and communication transforming the form of consumption into highly accessible, flexible, and easy to share (Kathan et al., 2016). Its advantages include the enormous potential for price saving, environmental sustainability, convenience, new consumption experiences, and social interactions (Kathan et al., 2016).

The literature produced on SE is already voluminous and encompass several subject areas.

Given the innumerous areas that SE embraces (e.g., hospitality, tourism, transportation), and the novelty and still fuzzy scientific frontiers of SE, by performing a bibliometric based on all the scientific documents published in all subject areas of sources indexed in Scopus and Web of Science (WoS). Additionally, and following the procedures used by Teixeira (2014), it is pertinent to perform a quantitative/bibliometric description of the state-of-the-art of the literature on SE, by explicitly addressing its roots, evolution and scientific influence/impact. Such quantitative overview complements more qualitative extant accounts providing readers with a comprehensive overview of the field.

Although Cheng's (2016) study focus on SE and also resorts to bibliometric methods, he addresses SE only in specific fields of research, most notably hospitality and transportation, uses only sources indexed on Scopus, and do not account for the roots, evolution and influence of the SE literature. These latter issues have been addressed by

Teixeira (2014), but the topic in analysis – the national systems of innovation – is a long standing and well developed scientific topic.

We argue that even in a seeming young topic such as 'Sharing Economy' (SE) it would be useful to get insights about who is informing such a literature (that is, its roots or intellectual basis), and who and which area are citing this novel literature, that is, who/which is being influenced by SE. Such a bibliometric account contributes for the clarification of the intellectual boundaries of this still very fuzzy stream of research.

To achieve the main objectives of the present study (to analyze the evolution of the literature; to identify its origins/roots; and to assess the extent of its scientific influence), we gathered all (reference date: 31st December 2016) the documents published in sources indexed in Scopus and Web of Science using a 'Sharing Economy' as keyword (in Scopus) or topic (in Web of Science) and performed a detailed analysis of the 199 documents that resulted from a time consuming process of consolidation and cleaning of the databases.

In order to identify the intellectual roots of the field we constructed a 'roots database' that includes the 6863 references cited by the 199 articles published on SE. Through this analysis, it is possible to discuss whether SE is an emergent or established concept, and to investigate the scientific/intellectual basis of the field.

Additionally, we constructed an 'influence database' that permits to analyze the 470 documents that cited the original 199 documents published on SE.

Through the above citation analyses, we uncover the origin (roots) and influences of the main ideas behind SE, to assess whether the literature is largely self-referential or has also had an impact in other areas and whether SE is a multidisciplinary field.

This present dissertation is organized as follows. In the next section (Section 2), a 'qualitative' review of the relevant literature on SE is performed. Next, in Section 3, it is detailed the methodology underlying the study. Some preliminary results are discussed in Section 4 and, finally, in Section 5 are presented the conclusions.

2. Literature review on the Sharing Economy (SE)

2.1. Defining SE

The term 'Sharing Economy' (SE) is characterized by individuals paying a fee for a service or rent assets owned by someone else (The Economist, 2013). This peer-to-peer model allows individuals to make use of under-utilized assets owned by others instead of buying them (PwC, 2014a). Through collaborative consumption individuals are able to take advantage of a service or a product that otherwise would be much more challenging (Teubner, 2014).

With this model, it is expected that social problems such as over-consumption, pollution and poverty would be reduced by decreasing the economic costs of traditional models (Hamari, Sjöklint and Ukkonen, 2016). This model, according to some (see PwC, 2014b), increases convenience, efficiency and well-being for its users eventually fostering economic growth (The Economist, 2013).

SE has been described as "[w]hat is mine is your, for a fee" (The Economist, 2013),[1] and some studies refer that "[m]aking money by sharing" is becoming a new mantra for the population (Cognizant, April 2016, page 2).

SE covers several areas of research, most notably hospitality/tourism (Fang, Ye and Law 2016; Tussyadiah and Zach, 2016), transportation (Botsman and Rogers, 2010), and energy/environmental sustainability (Szekely and Strebel, 2013). Such areas are experiencing a tremendous growth and have emerged as innovative alternative suppliers of goods and services traditionally provided by long-established industries due to this reinvented economic model (Zervas et al., 2016). As an example of those industries we have the hotels and short-term accommodation in the hospitality and tourism business or the taxi cab network in the transportation business (Munger, 2016). Zervas et al. (2016) proved also that the SE is making a difference in the hospitality and tourism businesses, allowing small businesses to successfully compete, differentiating and obtaining market share from large and incumbent firms.

[1] In The Economist (2013), http://www.economist.com/news/leaders/21573104-internet-everything-hire-rise-sharing-economy, accessed on October 16, 2016.

2.2. Extant literature on sharing economy: main topics of analysis

SE is a recent field of study, which gained popularity in the last few years, and it has been closely related to the diffusion of the Internet services (Belk, 2014a).

Extant literature on SE addresses mainly business issues such as (see Figure 1): 'Networks/cooperation/collaborative patterns' (Cohen et al., 2014), 'Technology implementation/management' (Molz, 2013), 'Business models related issues' (Belk, 2014b), 'Regulatory/law related issues' (Lougher and Kalmanowicz, 2016), and 'Behavioral, cultural, social impacts and ethical issues' (Ert, Fleischer and Magen, 2016), being 'Behavioral, cultural, social impacts and ethical issues', 'Networks/cooperation/collaborative patterns' and 'Technology implementation/ management' the most often analyzed.

Figure 1: Main topics in SE literature
Source: Own computation

The comprehensive topics 'Networks/cooperation/collaborative patterns', 'Technology implementation/management', and 'Behavioral, cultural, social impacts and ethical issues' are mentioned in the early studies of SE, in 2006, whereas topics such as 'Regulatory/law related issues' and 'Business models related issues' started to be mentioned more recently, since 2014. 'Networks/cooperation/collaborative patterns' and 'Technology implementation/management' topics mention the relation between the SE

and the technology, and mainly how the technology is used to develop products that allow agents to collaborate with each other (Westerbeek, Ubacht, Voort and Heuvelhof, 2016).

Interestingly, the rather young literature on SE does not only addresses the advantages brought by the emergence of new services and business models associated with SE, but also the disadvantages/ negative issues linked with this new approach. Specifically, the benefits addressed by extant literature are mostly related to 'Behavioral, cultural, social impacts and ethical issues', namely associated to the 'Carsharing' business area (Ikkala and Lampinen, 2015). Accordingly, personal vehicle sharing has the potential to impact on the transportation sector by increasing the interconnectivity among the population and providing alternatives to vehicle ownership in various geographic locations (Shaheen, Mallery and Kingsley, 2012). Additionally, it conveys a significant reduction of pollution due to a decrease in the number of cars on the road, production (people will own and store much fewer stuff), consumption of goods and services, leading to an improvement in the environmental sustainability (Heinrichs, 2013). The 'dark side' of SE includes issues such as bankruptcy (of the incumbent firms), employment losses and increases in temporary/short term employment contracts (Munger, 2016), and potential tax losses.[2] There can be thus costs for both new and incumbent companies and also to consumers. The costs for the new companies relate with international licensing laws in foreign markets and legal battles with incumbent companies and, eventually, consumers (Lougher et al., 2016). Incumbent companies face market share decreases and disruption of their 'business as usual' (Cusumano, 2015). Regarding the consumer, most of the potential problems emerge from problems related with the service supplied: any problem/cost which occurs during the service is bared by the consumers as the companies (e.g., Uber or Airbnb) claim that they are just 'matching platforms' and not service providers (Malhotra and Van Alstyne, 2014; Kathan et al., 2016).

2.3. The relevance of the study of the SE in innovation studies

The study of SE is necessary and important to any field related with innovation. As referred earlier, the majority of the literature on SE is centered on specific fields of research as technology, environment, hospitality and transportation. However, one

[2] See the The Guardian's article, "Tax, not tech, gives Airbnb advantages in UK", in https://www.theguardian.com/technology/2017/jan/03/tax-not-tech-gives-airbnb-advantages-in-uk, accessed on 22nd January 2017.

common issue that seems to trespass the studies on SE is their focus on the idea of novel business models (Cohen et al., 2014; Kathan et al., 2016), which reflect the so-called soft innovation (Mikhalkina and Cabantous, 2015).

In the innovation area, various bibliometric studies exist (Lazzarotti, Dalfovo and Hoffmann, 2011; Cheng 2016). However, to the best of our knowledge, most of them did not cover the SE field.

In the past years, several areas such as, dynamic capabilities, skills and organizational knowledge derived from innovation have attracted the interest of the academia (Lazzarotti et al., 2011). The SE phenomenon is related with the emergence of new companies (e.g. Airbnb, Uber), most notably related to 'disruptive' innovation. Given that SE might be considered in itself an innovation share, it would be illuminating to assess the extent to which innovation studies have covered the SE topic and in which perspectives.

3. Methodological considerations

Our empirical analysis follows closely the bibliometric approach of Teixeira (2014). The implementation of such approach involved the gathering of documents published and indexed in the Web of Science (WoS) and Scopus bibliographic databases, having 'Sharing Economy', as keyword (in Scopus) or topic (WoS).

Using this procedure, we obtained 135 documents published in sources indexed in the WoS and 111 in Scopus.[3] Given that some documents were common to the two databases (47 documents, that is, 23.6% of the total documents in the final database) of the effective number of documents for further analysis amounted to 199 (see Figure 2).

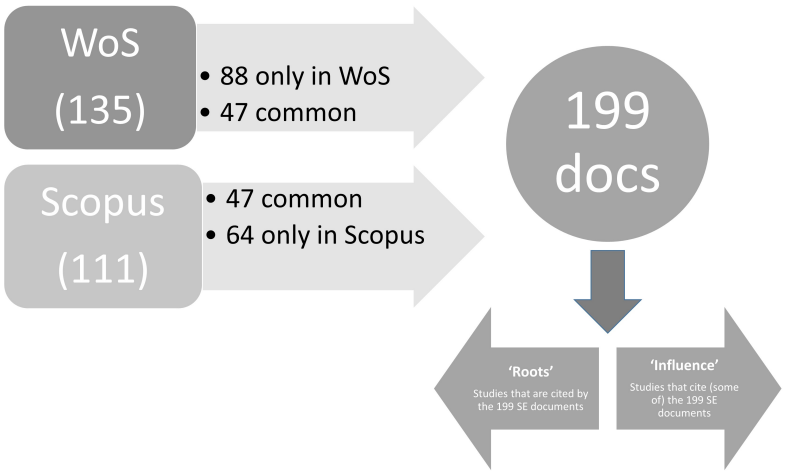

Figure 2: Data gathering procedure
Source: Own elaboration.

Such analysis encompasses 3 main databases: 1) the SE published database, containing the 199 documents; 2) the 'roots' database, containing the 6863 references of these 199 documents, which permit to have a picture of the scientific 'roots' or the intellectual basis of this scientific field; and 3) the 'influence' database, which included 470 documents, indexed in Scopus and WoS, that cite (some of) the 199 published documents.

It is important to highlight that the construction of the roots and influence databases was not automatic, quite the opposite. Despite the 199 documents are available in Scopus and WoS bibliographic databases, we were only able to automatically extract the references

[3] Through a reading of the abstract (and in some cases the whole document) of the whole documents extracted from the two bibliographic databases, we excluded 16 that consisted in editorial material (10), book reviews (4) and meeting abstracts (2).

cited by SE that were indexed in Scopus and/or WoS. Given that a huge number of references cited by SE are books and non-indexed documents, such a procedure would leave out a considerable number of documents. This would biased considerably the analysis of the intellectual roots of SE. Moreover, even if we did not had the problem of non-indexed references, a global and automatic extraction of the references cited by SE literature would not permit to get the information on the number of times a given reference is cited by the SE literature. In order to get such an information, we had to extract individually, for each of the 199 documents, the references that it cites.

We thus opted by a more rigorous but extremely time consuming and laborious procedure, which entailed the extraction for each one of the 199 documents the indexed and non-indexed references. We were able in this way to guarantee that we count for all the studies that constitutes the intellectual basis of the SE area and the intensity (number of times they area cited) in which these studies contribute to the building of the scientific area.

The combination of Scopus and WoS obliged to undertake a standardization of the references because they are not extracted with similar formats. Additionally, a common problem that affects all the bibliometric analysis involves authors and counting authors' names (Marušić, 2016; Gomide, Kling and Figueiredo, 2017). We had to go carefully over all publications retrieved with authors' surname and initial, and sort out their publications as often the same authors appear with only the initial, other times more than one initial and other times with the fully spelled initial name. As Marziale (2009: 143) recognizes, "the lack of standardization to register the name of the author makes it difficult to find studies and can interfere in the articles' and authors' citation ratios".

Albeit in a lesser extent, the source title also required standardization and disambiguation procedures that involved considerable time-consuming tasks.

4. Empirical analysis

4.1. Scientific production on SE

4.1.1. Time evolution

Research on SE has experienced a huge growth in the last five years (see Figure 3). The growth of the field can be observed in absolute and relative terms. In absolute terms, we observe that 96% of the 199 documents were published in the last three years (2014-2016). In relative terms, the weight of the documents published (in percentage of documents published in economics in WoS) was, until 2011, 0.03%, from 2011 to 2013, 0.13%, and from then on, until 2016, it significantly increased to almost 3.4%.

Thus, one can conclude that SE is an emergent field of research outperforming the trend of the papers published in 'Economics' and 'Management/Business'.

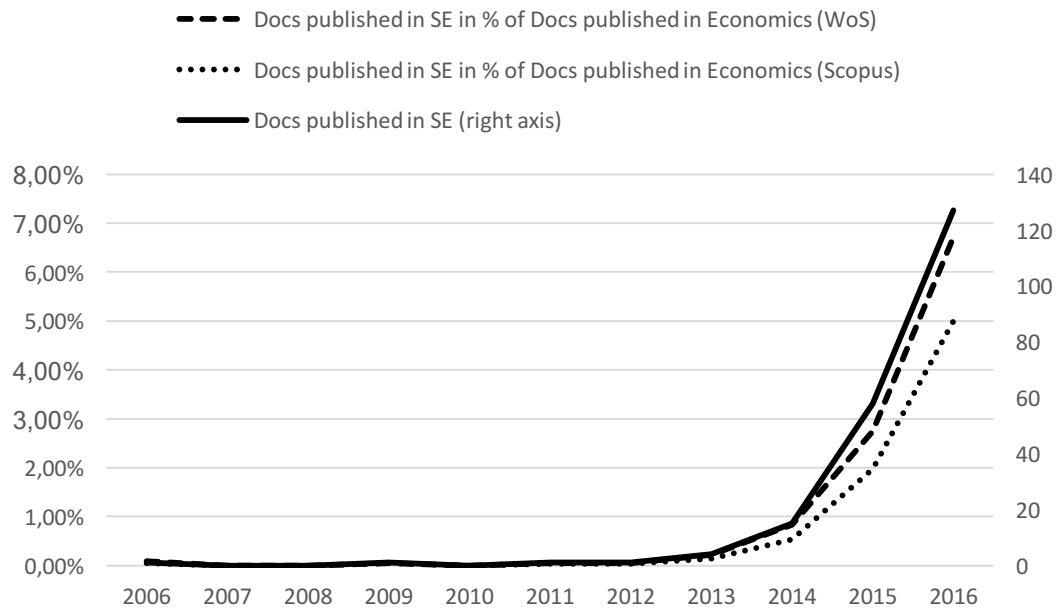

Figure 3: Evolution of the papers published on Sharing Economy, 1996-2016
Notes: The 199 documents on SE were obtained from the WoS and Scopus bibliographic databases using Sharing Economy as search keywords. In the areas of 'Management' and 'Economics' the documents were gathered from WoS and Scopus (period of reference 31st December 2016).

4.1.2. Most prolific authors

The 199 documents published on SE were authored and co-authored by 424 distinct individuals. However, the vast majority of the authors (more than 91%) published just one paper, and 39 authors published 2 or more documents. Only 9 authors, who represent 2% of the total, published 3 or more papers (see Table 1).

From the top prolific authors, 3 (Victoria Bellotti, Coye Cheshire and Iis P. Tussyadiah) are affiliated in universities located in the United States, two are affiliated in Nordic institutions (Michel Avital, in Denmark and Airi Lampinen, in Sweden), two others in institutions located in western Europe (Timm Teubner, in Germany, and Thomas Weber, in Switzerland); the remaining two authors are affiliated in one Spanish school (Boyd Cohen) and a South Korean Research Institute (Jonghyun Kim).

The main areas of studies of these authors are related to information systems, most notably Human Computer Interactions, Cyber and Social Psychology (Victoria Bellotti, Airi Lampinen, and Coye Cheshire), Information Systems and Technology (Jonghyun Kim, Michel Avital), and Management Information Systems (Timm Teubner, Thomas A. Weber). Entrepreneurship (Boyd Cohen), and Tourism (Iis P. Tussyadiah) related areas are also represented.

The authors that have been contributing to SE are quite productive – 7 out of the 9 authors have more than 20 papers indexed in Scopus, and within this group two (Victoria Bellotti and Michel Avital) have more than 50 documents published in sources indexed in Scopus –, and scientifically influential – 3 (Victoria Bellotti, Coye Cheshire and Iis P. Tussyadiah) present a h-index[4] higher than or equal to 10.

The most productive and influential author in this group is Victoria Bellotti, a Research Fellow in the Computer Sciences Lab (CSL) at the Palo Alto Research Center (PARC) (a Xerox company). Well known for her research on personal information management and task management, she has more recently been focusing on user-centered design of context- and activity-aware computing systems. Her previous work at London University, United Kingdom, The British Government's Department of Trade and Industry, EuroPARC, and Apple encompassed domains such as transportation, process control, computer-mediated communication, collaboration, and ubiquitous computing.[5]

It is interesting to note that the scientific output of the top prolific authors in SE is mostly published as conference proceeding rather than journal articles. Additionally, the vast majority of top prolific authors published much more in subjects other than SE. These

[4] The h-index measure both the productivity and citation impact of the publications, is based on the most cited papers and the number of citations that are present in other publications. This measure can also be applied to the productivity and impact of the journal.
[5] Source: in https://www.parc.com/about/people/13/victoria-bellotti.html, accessed on 22nd January 2017.

two findings seem to suggest that they publish in relatively emergent areas of study and are not specialists in the subject of SE.

Table 1: Most prolific authors on SE

Author's name	Affiliation	Area of studies (Scopus)	Short area	Number of docs on SE	No. docs (articles) in Scopus	h-index in Scopus
Lampinen, Airi*	Mobile Life Centre Stockholm University Kista (Sweden)	Computer Science, Engineering, Social Sciences, Psychology, Mathematics	Cyberpsychology, Networks	6	25 (4)	5
Kim, Jonghyun	Electronics and Telecommunications Research Institute, Daejeon (South Korea)	Computer Science, Engineering, Mathematics, Biochemistry, Genetics and Molecular Biology, Chemistry, Physics and Astronomy, Multidisciplinary, Medicine, Social Sciences	Computer and Information Science	4	27 (7)	3
Teubner, Timm	Karlsruhe Institute of Technology (Germany)	Computer Science, Business, Management and Accounting, Engineering, Economics, Econometrics and Finance, Decision Sciences	Management Information Systems	4	14 (5)	3
Tussyadiah, Iis P.	Washington State University Vancouver (USA)	Business, Management and Accounting, Social Sciences, Computer Science, Engineering, Economics, Econometrics and Finance, Mathematics, Environmental Science	Tourism	4	28 (20)	10
Weber, Thomas A.	Ecole Polytechnique Federale de Lausanne (Switzerland)	Decision Sciences, Economics, Econometrics and Finance	Management Information Systems	4	23 (10)	4
Avital, Michel	Copenhagen Business School Copenhagen (Denmark)	Computer Science, Social Sciences, Business, Management and Accounting, Decision Sciences, Mathematics, Economics, Econometrics and Finance, Medicine	Information Systems and Technology	3	52 (20)	7
Bellotti, Victoria*	Palo Alto Research Center (USA)	Computer Science, Mathematics, Social Sciences, Engineering, Psychology	Human Computer Interactions	3	58 (11)	17
Cheshire, Coye*	School of Information, University of California, Berkeley (USA)	Computer Science, Social Sciences, Psychology, Engineering, Arts and Humanities	Social Psychology	3	33 (10)	11
Cohen, Boyd	EADA Business School (Spain)	Business, Management and Accounting, Environmental Science, Social Sciences, Engineering, Energy, Economics, Econometrics and Finance	Entrepreneurship	3	13 (9)	5

Notes: The 199 documents on SE were (co-)authored by 424 individuals and were obtained from the WoS and Scopus bibliographic databases using Sharing Economy as search keywords (period of reference 31st December 2016).

4.1.3. Top most cited and influential studies on SE

More than half (66.3%) of the 199 documents published on SE failed to receive citations. About 26% of the papers received 1 (13%), 2 (7%), 3 (4%) or 4 (2%) citations. The 15 papers listed in Table 2 received 67% of the total (302) citations.

The most cited papers belong to 'Business' study area followed by 'Environmental Studies' and 'Management'; 'Hospitality, Leisure, Sport & Tourism' and 'Sociology'; 'Psychology' and 'Information Science & Library Science'.

The top 15 most cited and influential papers are (see Table 2) "*You are what you can access: Sharing and collaborative consumption online*", by Russell Belk, published in 2014, cited 78 times (26 citations per year), "*Ride On! Mobility Business Models for the Sharing Economy*" by Boyd Cohen and Jan Kietzmann, published in 2014, cited 20 times (6.7 citations per year), "*Conceptual foundations for understanding smart tourism ecosystems*", by Ulrike Gretzel, Hannes Werthner, Chulmo Koo and Carlos Lamsfus, published in 2015, cited 12 times (6 citations per year), and "*The sharing economy: A pathway to sustainability or a nightmarish form of neoliberal capitalism?"*, by Chris J. Martin, published in 2016, cited 5 times.

The top cited papers (see Figure 4) address issues such as sharing with collaborative consumption and its rapid growth (Belk, 2014a; Matzler et al., 2015), the expansion and growth of personal vehicle sharing including business models, market opportunities and service barriers as a sustainable transportation mode alternative consumption and sharing and the reasons why these areas are experiencing a tremendous growth (Cohen et al., 2014), and its implications for business using traditional models of sales and ownership (Cusumano, 2015).

Specifically, some papers compare sharing economy and collaborative consumption and finds that both topics are experiencing a tremendous growth in popularity nowadays (Belk, 2014; Matzler et al., 2015). Another subject discussed in some papers is the existing shared mobility business models in order to reveal the optimal relationship between service providers and the local governments to achieve the common objective of sustainable mobility and collaborative consumption through cars (Cohen et al., 2014) and is also explored the idea of ride sharing and demonstrates how information systems can leverage its potential (Teubner and Flath, 2015).

Table 2: The top 15 most cited and influential articles on SE

Rank	Year	Study	Journal/Source	Journal's IF2015	WoS journal's study area and ranking (Quartile)	SCImago Journal Rank	SCImago journal's study area and ranking (Quartile)	Nº of citations received	Citati per Y
1	2014	Belk, R. "You are what you can access: Sharing and collaborative consumption online"	*Journal of Business Research*	2.129	Business (40/120; Q2)	1.682	Business, Management and Accounting Marketing (103/1369; Q1)	78	26
2	2014	Cohen, B., & Kietzmann, J. "Ride on! Mobility business models for the sharing economy".	*Organization & Environment*	2.650	Environmental Studies – SSCI (18/104; Q1) Management – SSCI (35/192; Q1)	0.727	Business, Management and Accounting (169/1369; Q1) Organizational Behavior and Human Resource Management (45/158; Q2) Environmental Science (389/1370; Q2) Environmental Science (miscellaneous) (68/280; Q1)	20	6.7
4	2015	Gretzel U., Werthner H. & Koo C., Lamsfus C. "Conceptual foundations for understanding smart tourism ecosystems"	*Computers in Human Behavior*	2.880	Psychology, experimental SSCI (21/129; Q1) Psychology, multidisciplinary (20/85; Q1)	1.646	Arts and Humanities (88/3449; Q1); Arts and Humanities (miscellaneous) (47/436; Q1); Computer Science (136/5183; Q1); Human-Computer Interaction (10/346; Q1); Psychology (123/1063; Q1); Psychology (miscellaneous) (25/221; Q)	12	6
12	2016	Martin C.J. "The sharing economy: A pathway to sustainability or a nightmarish form of neoliberal capitalism?"	*Ecological Economics*	3.227	Ecology – SCIE (38/150; Q1) Environmental Sciences – SCIE (51/225; Q1)	1.733	Economics, Econometrics and Finance (96/882; Q1) Economics and Econometrics (96/882; Q1) Environmental Science (36/1370, Q1) Environmental Science (miscellaneous) (20/280; Q1)	5	5
7	2015	Cusumano, M. A. "How traditional firms must compete in the sharing economy".	*Communications of the ACM*	3.301	Computer Science, Hardware & Architecture – SCIE (95/5183; Q1) Computer Science, Software Engineering – SCIE (2/106; Q1) Computer Science, Theory & Methods – SCIE (7/105; Q1)	1.910	Computer Science (95/5183; Q1) Computer Science (miscellaneous) (11/444; Q1)	9	4.5
9	2015	Lee M.K., Kusbit D., Metsky E. & Dabbish L. "Working with machines: The impact of algorithmic and data-driven management on human workers"	*Conference on Human Factors in Computing Systems - Proceedings*	-	-	0,463	Computer Science (821/5183; Q1) Computer Graphics and Computer-Aided Design (39/352; Q1) Human-Computer Interaction (61/346; Q1) Software (259/1421; Q1)	7	3.5
10	2015	Mohlmann, M "Collaborative consumption: determinants of satisfaction and the likelihood of using a sharing economy option again"	*Journal of Consumer Behaviour*	1.022	Business SSCI (81/120; Q3)	0.940	Psychology (305/1063; Q2) Applied Psychology (52/189; Q2) Social Psychology (64/225; Q2)	7	3.5
3	2013	Molz, J. G. "Social networking technologies and the moral economy of alternative tourism: The case of couchsurfing.org".	*Annals of tourism research*	2.275	Hospitality, Leisure, Sport & Tourism – SSCI (8/44; Q1) Sociology – SSCI (11/142; Q1)	2.658	Business, Management and Accounting (53/1369; Q1) Tourism, Leisure and Hospitality Management (2/79; Q1) Social Sciences (65/5542; Q1) Development (2/197; Q1)	13	3.3
5	2013	Heinrichs, H. "Sharing economy: a potential new pathway to sustainability".	*GAIA-Ecological Perspectives for Science and Society*	1.397	Environmental Studies – SSCI (58/104, Q3)	0.575	Economics, Econometrics and Finance (276/881, Q2) Economics, Econometrics and Finance (miscellaneous) (42/269, Q1) Environmental Science (479/1370, Q2) Environmental Science (miscellaneous) (89/280, Q1)	12	3
6	2014	Weber T.A. "Intermediation in a Sharing Economy: Insurance, Moral Hazard, and Rent Extraction"	*Journal of Management Information Systems*	3.025	Information Science & Library Science – SSCI (6/86; Q1) Management – SSCI (25/192; Q1)	3.036	Business, Management and Accounting (44/1369; Q1) Management Information Systems (3/83; Q1) Computer Science (34/5183; Q1) Computer Science Applications (12/1143; Q1) Decision Sciences (17/392; Q1) Information Systems and Management (4/127; Q1) Management Science and Operations Research (9/150; Q1)	9	3
11	2015	Dillahunt T.R. & Malone A.R. "The promise of the sharing economy among disadvantaged communities"	*Conference on Human Factors in Computing Systems - Proceedings*	-	-	0,463	Computer Science (821/5183; Q1) Computer Graphics and Computer-Aided Design (39/352; Q1) Human-Computer Interaction (61/346; Q1) Software (259/1421; Q1)	6	3

(...)

Rank	Year	Study	Journal/Source	Journal's IF2015	WoS journal's study area and ranking (Quartile)	SCImago Journal Rank	SCImago journal's study area and ranking (Quartile)	Nº of citations received	Citati per Y
13	2015	Martin C.J., Upham P. & Budd L. "Commercial orientation in grassroots social innovation: Insights from the sharing economy"	*Ecological Economics*	3.227	Ecology – SCIE (38/150; Q1) Environmental Sciences – SCIE (51/225; Q1)	1.733	Economics, Econometrics and Finance (96/882; Q1) Economics and Econometrics (96/882; Q1) Environmental Science (36/1370, Q1) Environmental Science (miscellaneous) (20/280; Q1)	5	2.5
14	2015	Teubner T. & Flath C.M. "The Economics of Multi-Hop Ride Sharing: Creating New Mobility Networks Through IS"	*Business and Information Systems Engineering*	2.059	Computer Science, Information Systems – SCIE (31/144; Q1)	-	-	5	2.5
15	2015	Matzler K., Veider V. & Kathan W. "Adapting to the Sharing Economy"	*MIT Sloan Management Review*	2.114	Business (41/120; Q2); Management (58/192; Q2)	1.128	Business, Management and Accounting (173/1370; Q1); Business and International Management (43/332; Q1); Management of Technology and Innovation (36/283; Q1); Strategy and Management (54/347; Q1); Decision Sciences; (88/392; Q1); Decision Sciences (miscellaneous) (10/41; Q1)	5	2.5
8	2009	Dussart, F "Diet, diabetes and relatedness in a central Australian Aboriginal settlement: some qualitative recommendations to facilitate the creation of culturally sensitive health promotion initiatives"	*Health Promotion Journal of Australia*	1.231	Public, Environmental & Occupational Health – SSCI (95/153; Q3)	0.606	Medicine (2427/6537; Q2) Public Health, Environmental and Occupational Health (464/187; Q2) Nursing (150/575; Q1) Community and Home Care (6/33; Q1)	8	1

Notes: The information presented in Table 2 was obtained from the WoS and Scopus bibliographic databases (period of reference 31st December 2016).

The environment and sustainability is a very important subject in the SE with the main focus of the papers on environment and sustainability addressing the field of production and consumption of goods, services and existing collaborative systems in manufacturing (Heinrichs, 2013). Tourism is another focus for many papers where it is discussed the idea of a smart tourism ecosystem and its relation with smart technologies, smart cities and smart tourism (Gretzel et al., 2015). Other papers (e.g., Weber, 2014 and Gretzel et al., 2015) discuss online hospitality and house renting. Health is another discussed subject addressing issues as cooperation in healthcare (Dussart, 2009). SE is also shaping the way that traditional firms are operating in the market mainly how those firms are competing, how difficulties are faced by those firms due to new companies – Internet startups in the "sharing economy" (Cusumano, 2015). In Figure 4 are the papers referenced above in a diagram shape to be easier to identify the most cited papers and the subjects present in the documents.

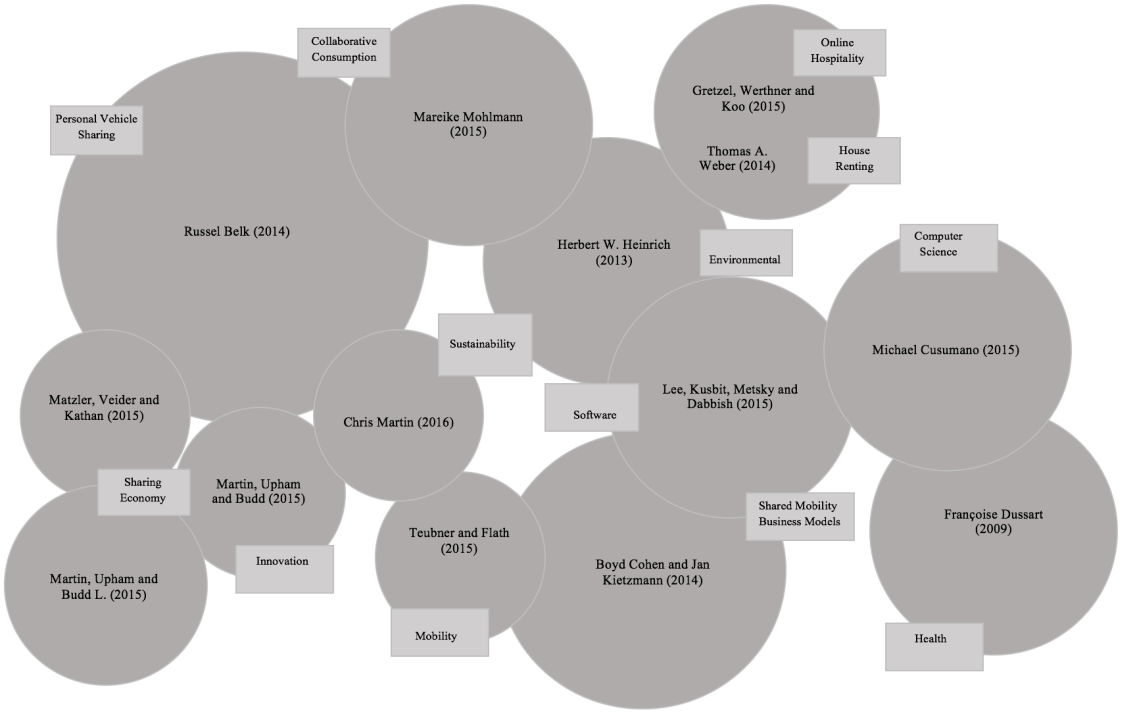

Figure 4: Top cited papers

Notes: The size of the circles is associated with the total number of citations received by document (reference date: December 2016).

Out of the 15 top cited papers, 13 are indexed in both WoS and Scopus, which reflects their good scientific impact. Additionally, 8 out of the 15 papers are ranked in the top

quartile (Q1), which means that those documents are published in journals ranked at the top of their research area (e.g., Cohen et al., 2014; Gretzel et al., 2015; Cusumano, 2015).

4.1.4. Most important outlets of SE literature

From the documents published on SE, 4 are reviews, 4 are book chapters, 87 are conference papers and 104 are journal articles. Although SE is a field with a considerable number of papers published in well renowned journals (e.g. *Information Communication & Society, International Journal of Hospitality Management, Journal of Business Research, Journal of Cleaner Production, Journal of Management Information Systems, Small Business Economics*), the high number of conference papers tends to reflect the relatively newness and emergence of the field.

One journal, *Information Communication & Society* (Taylor and Francis) and a series of conference proceedings, *Lecture Notes in Computer Science*, encompass 4 documents each. Having as reference the top 20 most important outlets (see Table 3), we found that the most frequent areas of study are 'Computer Science' (20%), 'Business (15%), 'Communication' (10%), 'Hospitality, Leisure, Sport & Tourism' (10%), 'Environmental Engineering' (5%), 'Geography' (5%), 'Ecology' (5%), and 'Geography' (5%).

Table 3: Most important outlets of SE literature

Rank	Journal	Number of papers	WoS Area	IF2015	Scopus Area	SJR
1	Information Communication & Society	4	Communication (Q1)	2.109	Social Sciences (Q1)	2.009
2	Lecture Notes in Computer Science	4	Computer Science, Artificial Intelligence (Q4)	0.302	Computer Science (Q3)	0.252
3	Environmental Innovation and Societal Transitions	3	-	-	Energy (Q2)	1.121
4	Interaction Design and Architectures	3	Education Educational Research (-)	*NA*	Computer Science: Computer Science Applications (Q4)	0.400
5	International Journal of Hospitality Management	3	Hospitality, Leisure, Sport & Tourism (Q1)	2.061	Business, Management and Accounting (Q1)	1.887
6	Journal of Business Research	3	Business (Q2)	2.129	Business, Management and Accounting Marketing (Q1)	1.682
7	Journal of Cleaner Production	3	Environmental Engineering (Q1)	4.959	Business, Management and Accounting (Q1)	1.721
8	Business and Information Systems Engineering	2	Computer Science, Information Systems (Q1)	2.059	-	-

(...)

Rank	Journal	Number of papers	WoS Area	IF2015	Scopus Area	SJR
9	Computers in Human Behavior	2	Experimental Psychology (Q1)	2.880	Arts and Humanities (Q1)	1.646
10	Current Issues in Tourism	2	Hospitality, Leisure, Sport & Tourism (Q1)	1.733	Business, Management and Accounting (Q2)	0.635
11	Ecological Economics	2	Ecology (Q2)	3.227	Economics, Econometrics and Finance (Q1)	1.733
12	Geoforum	2	Geography (Q1)	2.397	Social Sciences (Q1)	1.512
13	IEEE Internet Computing	2	Computer Science, Software Engineering (Q2)	1.400	Computer Science (Q1)	0.833
14	IFIP Advances in Information and Communication Technology	2	-	-	Decision Sciences (Q4)	0.160
15	Informacios Tarsadalom	2	Information Science & Library Science (Q4)	0.045	Social Sciences (Q4)	0.100
16	International Journal of Communication	2	Communication (Q3)	0.701	Social Sciences (Q1)	0.667
17	Journal of European Competition Law & Practice	2	-	-	-	-
18	Journal of Management Information Systems	2	Computer Science, Information Systems (Q1)	3.025	Business, Management and Accounting (Q1)	3.036
19	Lecture Notes in Information Systems and Organisation	2	Business (Q3)	1.022	-	-
20	Small Business Economics	2	Business (Q2)	1.795	Business, Management and Accounting (Q1)	2.013

Note: The reference date for data extraction is 9th of February 2017

4.1.5. Evolution of the main topics, areas, and perspectives addressed by SE published papers

Topics

The topics discussed in the 199 documents analyzed were grouped in the following categories (see Section 2.2): 'Networks/cooperation/collaborative patterns', 'Technology implementation/ management', 'Business models related issues', 'Regulatory/law related issues', 'Behavioral, cultural, social impacts and ethical issues', and a residual category, 'Others'.

In the vast topic 'Networks/cooperation/collaborative patterns' are explored several subjects, including the comparison of sharing and collaborative consumption and the

discovers that both are rising (Belk, 2014b), on online peer-to-peer economic activities as rental (Airbnb), ride services (Uber) and gifting (Freecycle) (Martin, 2016). Some papers included in this category highlight the fact that instead of buying and owning products, consumers are interested in leasing and sharing (Matzler et al., 2015).

Documents discussing 'Technology implementation/management' address issues such as the fourth industrial revolution (Chung and Kim, 2016), the relationship between the SE and the technology, and mainly how the technology is used to develop products that allow agents to collaborate with each other, or themes as 'crowdfunding' and 'crowdsourcing' and online platforms of sharing (Westerbeek et al., 2016).

In the category 'Business models related issues' is explored new business models related with SE, more specifically the reasons for the current growth in these new business models and their implications for businesses still using traditional models of sales and ownership (Belk, 2014b), it is also discussed how existing business models are affected by the sharing economy.

In the category 'Regulatory/ law related issues', the papers present analytical frameworks for the assessment of competition law regarding the activities in the sharing economy (Lougher et al., 2016), discussions on the international licensing laws in foreign markets and legal battles with incumbent companies, and potential problems emerging from issues related with the service supplied (e.g., Uber or Airbnb) (Malhotra et al., 2014; Kathan et al., 2016).

'Behavioral, cultural, social impacts and ethical issues' category includes studies that highlight what motivates individuals to monetize network hospitality and how the presence of money ties in with the social interaction related to network hospitality (Ikkala et al., 2015). Other studies in this category examine factors that influence guest's satisfaction with a peer-to-peer accommodation and their intention to use it again for future trips (Tussyadiah and Pesonen, 2016a).

In Figure 5 it is possible to observe the evolution of SE according to the main topic over the period 2006-2016.

For the period as a whole, 'Behavioral, cultural, social impacts and ethical issues' embraces most of the published studies (77 out of 199, 38.7%), followed by 'Networks/ cooperation/ collaborative patterns' (35 out of 199, 17.6%) and 'Business models' (33 out of 199, 16.6%) encompass each about 34.2% of the total papers published on SE.

In terms of evolution, the two above mentioned topics ('Behavioral, cultural, social impacts and ethical issues' and 'Business models') gained great relevance with SE literature in 2015. Between 2015 and 2016, 'Technological implementation/ management', 'Networks/cooperation/collaborative patterns', and the residual category 'Others, registered an increase in their relative importance.

It is interesting to note that the publications on 'Business models' related issues began to emerge only in 2015 and its increased importance is, at least in part, explained by the changes that incumbent companies needed to make in order to compete in this 'new economic framework'. Also, 'Regulatory/ law related issues' started to be diffused only quite recently, in 2014, which might be related to the regulatory challenges posed by the entrance and growth of disruptive companies as Uber and Airbnb.

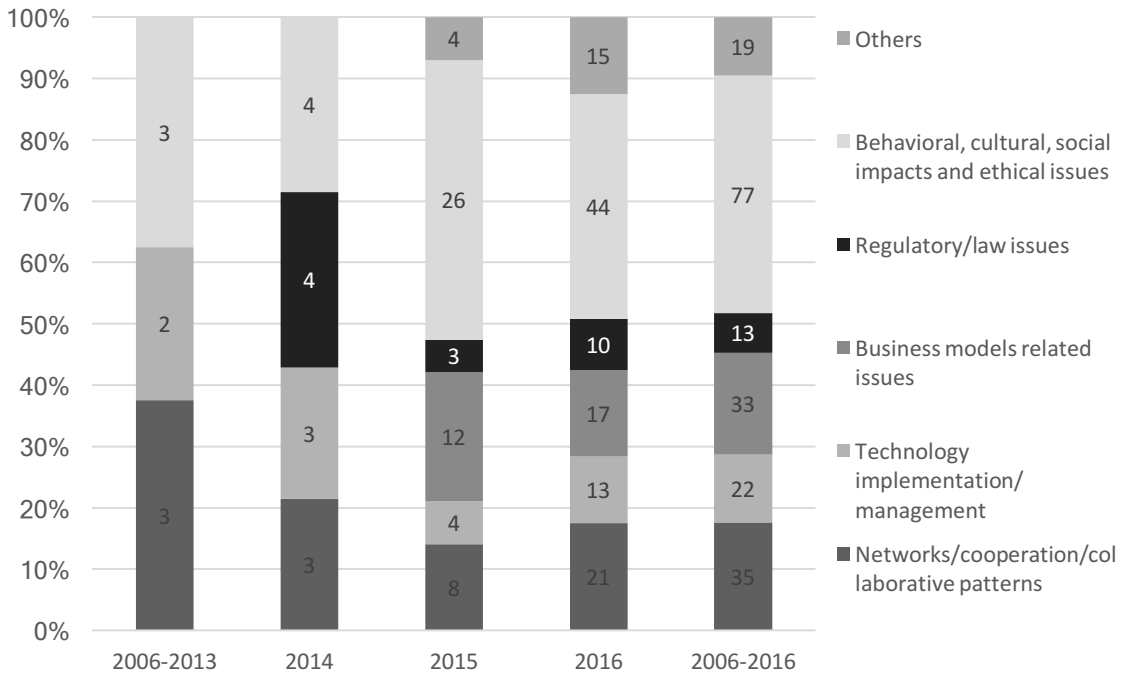

Figure 5: The evolution (number) and relative weight (%) of documents by topic, 2006-2016
Source: Own elaboration.

In conclusion of what has been said it is possible to notice that SE is a very diversified field of study, encompassing quite distinct business areas and topics of study.

Areas of business

The 199 papers on SE empirically address several business areas, most notably

'Environment/ Sustainability', 'Transports', 'Hospitality/ Tourism', and 'Technology' (including technological based firms/ businesses/ platforms) – see Figure 6.

In 'Environment/Sustainability' area some studies (e.g., Romero, Noran and Afsarmanesh, 2015; Kopnina, 2015) point the fact that SE provides the ability to value the underutilized assets and other resources towards higher resource efficiency, whereas others (e.g., Tedjasaputra and Sari, 2016; Heinrichs, 2014) highlight the potential SE has to improve asset utilization and reduce transaction cost or waste effectively and efficiently.

Studies related to 'Technology' area (e.g., McNeill, 2016; Sjöblom, Törhönen, Hamari and Macey, 2016) highlight issues such as technological implementation and SE in technological based companies.

Considering the whole period (2006-2016), 'Technological businesses/platforms' is the area with more weight. This was in fact an expected result since the technology area is directly related with SE with most of the sharing businesses being online platforms (ex. Uber, Airbnb). This area is followed by 'Hospitality/tourism' and 'Transports', which reflected the emergence of companies as Uber and Airbnb.

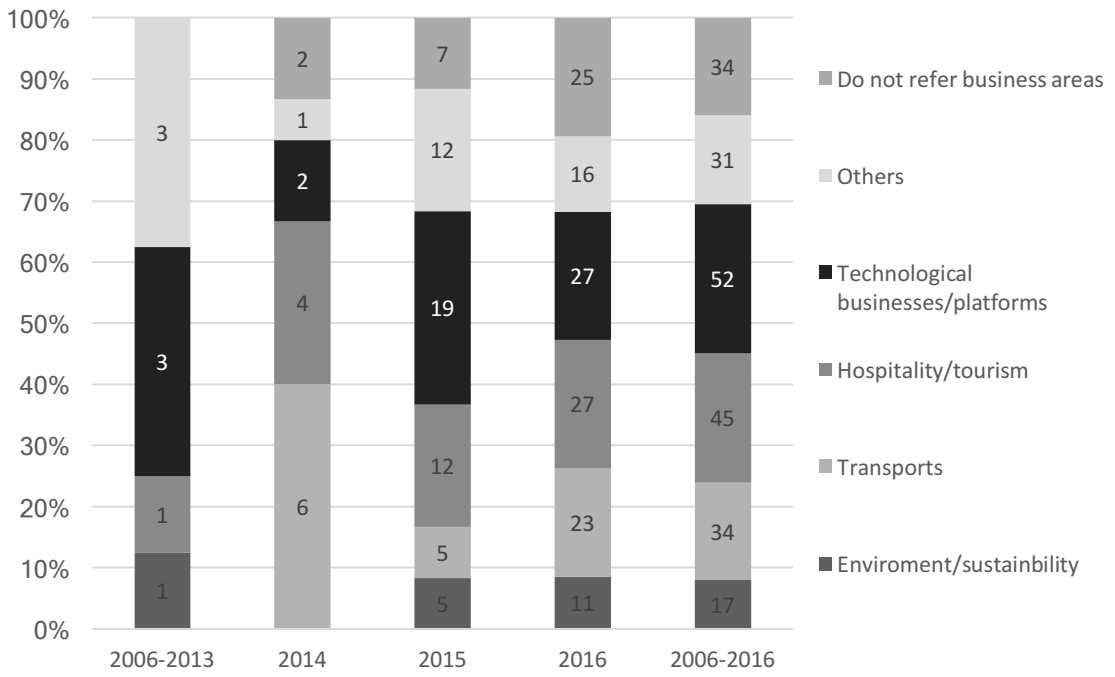

Figure 6: The evolution (number) and relative weight (%) of documents by business area, 2006-2016

Source: Own elaboration.

Perspectives

It was also analyzed the normative perspective: this analysis presents information related with focus of the documents either on benefits or on the negative impacts of SE.

From the 199 documents, 70% did not mention any perspective, 19% focused on benefits mainly, and 11% focused on the negative impacts. This means that to some extent SE is seen as entailing positive impacts. Nevertheless, the number of studies uncovering negative impacts is also significant. Thus, SE might be considered an emergent, disputable area where studies are still exploring the benefits and negative impacts from distinct viewpoints.

The positive aspects mentioned in several documents include sustainability (Kopnina, 2015), convenience (Ballús-Armet, Shaheen, Clonts and Weinzimmer, 2014), availability (Teubner et al., 2015), monetary savings (Ballús-Armet et al., 2014), and expanded mobility options (Lisson, Roedder, Stroehle and Weinhardt, 2016).

Specifically, some articles highlight that the car sharing benefits are being recognized by city leaders to transform their infrastructure for more viable multimodal communities (Birdsall, 2014). Other studies see the possibility to maximize the usability of the used car and to solve a problem which is lack of parking lots (Son, Min, Kim and Baek, 2014). Another issue highlighted is the significant reduction of pollution due to a decrease in the number of cars on the road, production, consumption of goods and services, leading to an improvement in the environmental sustainability (Heinrichs, 2013). Furthermore, other papers within the hospitality/tourism area highlight the utility (Müller, 2014), trust (Mittendorf, 2016), cost savings (Tussyadiah and Pesonen, 2016b), and familiarity (Mittendorf, 2016).

On the negative perspective, several studies pointed problems related to international licensing and regulation (Lougher et al., 2016), issues regarding risk attitudes related to participation in the sharing economy (Park, Kim and Lee, 2016), the (lack of) quality in services supplied to the customer (Malhotra et al., 2014; Kathan et al., 2016), and bankruptcy of incumbent firms, employment losses and increases in temporary/short term employment contracts (Munger, 2016).

4.1.6. Evolution of the type of analysis

The documents published in SE were also classified according to the main method of research used, that is, empirical or theoretical. Such distinction is a shortened version of the categorization proposed by Cruz and Teixeira (2010).

The documents classified as 'empirical' encompass studies that involve data testing/analysis (Cruz and Teixeira, 2010). The 'theoretical' documents encompass appreciative studies (discussion of the subject), critiques, judgements, appreciations or appraisals (Teixeira, 2014).

From the 199 documents published on SE, 69% (138 documents) are theoretical (e.g., Belk, 2014b; Cohen et al., 2014), and 31% (61 documents) are empirical (e.g., Molz, 2013; Dillahunt and Malone, 2014) – see Figure 7.

If we exclude the period 2006-2013, for which the number of studies published on SE are rather small (8 documents), we observe that the empirical related studies experienced a huge increase from 14% in 2014 to 34% in 2016. Nevertheless, the theoretical related studies continue to represent the bulk of the literature (68%) published in sources indexed in Scopus and/or WoS over the period in analysis (2006 to 2016).

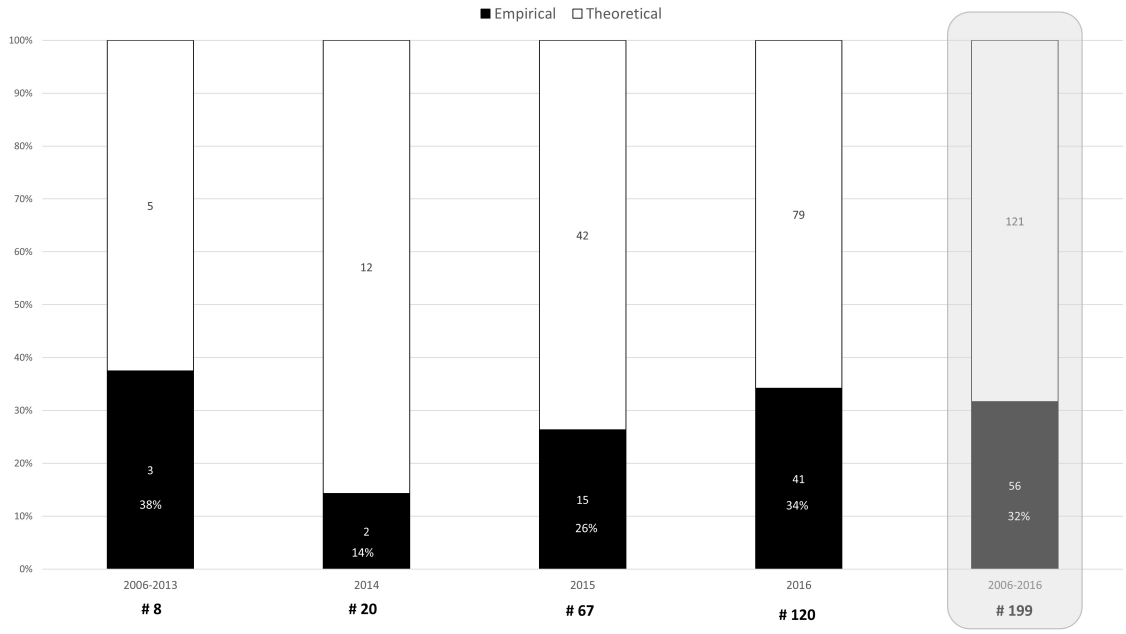

Figure 7: **The evolution (number) and relative weight (%) of theoretical and empirical related documents, 2006 – 2016**
Source: Own elaboration.

Theoretical documents related with SE literature (e.g., Belk, 2014b; Cohen et al., 2014) debate vast topics as new business models (SE related), discuss reasons for the current

growth in these new business models, their implications for other businesses, and how existing business models are affected by the sharing economy (Belk, 2014b). It is also commented the expansion and growth of personal vehicle sharing, market opportunities and service barriers as a sustainable transportation mode alternative consumption (Cohen et al., 2014).

Within the empirical category, 54% of the documents pursue a qualitative (e.g., Santana and Parigi, 2015) type of analysis whereas 43% undertake quantitative analysis (e.g., Ikkala et al., 2015), and 3% use both data analysis methodologies (e.g., Pera, Viglia, Furlan, 2016) – see Figure 8.

Although in 2015 the majority of empirical documents published in sources indexed in Scopus and/or WoS entailed a qualitative approach, in 2016 there was almost a balance between qualitative (49%) and quantitative (46%) analyses.

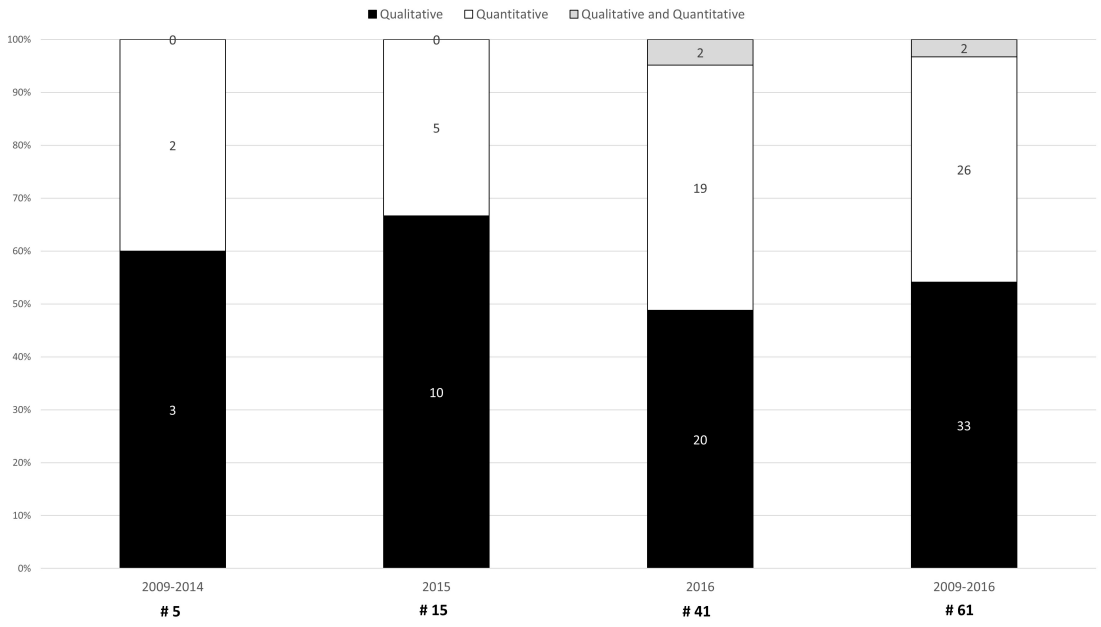

Figure 8: **The evolution (number) and relative weight (%) of empirical documents on SE, 2009 – 2016**
Source: Own elaboration.

Only 2 documents embrace a qualitative and quantitative analyses. That is the case of "*The promise of the sharing economy among disadvantaged communities*" by Dillahunt et al. (2014), which describes the results of a participatory-design based workshop to investigate the perception and feasibility of finding temporary employment and sharing

spare resources using sharing economy applications. Santana and Parigi (2015) ("Risk aversion and engagement in the sharing economy") also combine quantitative and qualitative analyses for assessing whether engagement in the sharing economy is associated with the aversion to risk.

4.2. The scientific roots of the SE literature

4.2.1. A brief overview of the cited references by the SE literature

From the 199 articles published on SE, we managed to download and gather the references of 191 articles (95.9% of the total). From each downloaded article, we copied and pasted their references (citations) and re-formatted them to be able to treat them.

The 191 articles yielded more than 6000 references/citations (more precisely 6863). The references cited by the SE literature are relatively recent. The majority (57%) were published in the last 7 years (see Figure 9). More than 80 per cent of the cited references were published in the last twenty years. Thus, even the scientific roots of the SE literature are quite young.

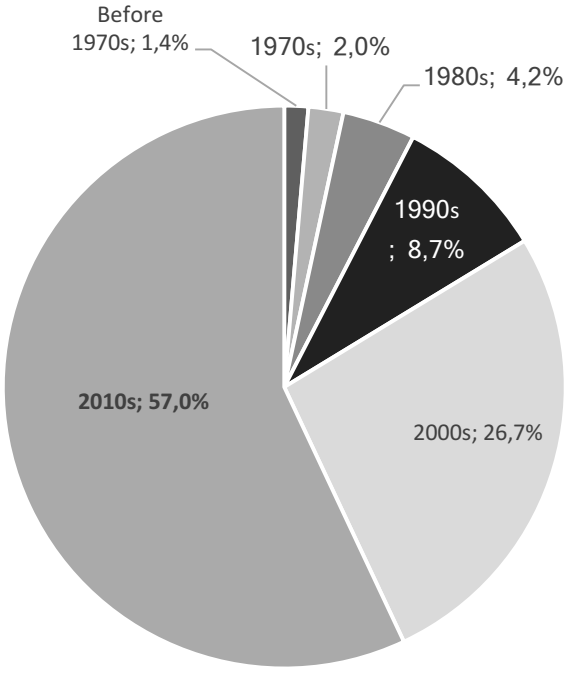

Figure 9: The references cited by the SE literature according to the year of publication
Source: Own elaboration.

4.2.2. Most cited authors by SE literature

In total, 7100 distinct authors were cited by the SE literature. The most widely cited authors are Russell Belk, Rachel Botsman and Richard Rogers, the founding parents of the SE approach (see Table 4).

The majority of the top cited authors are affiliated with renowned universities (e.g., Harvard Law School) and has a large number of citations in Scopus. This means that these authors are quite established individuals within the scientific community in their areas of expertise. For instance, Russel W. Belk,[6] professor of Marketing at York University (Canada) is the most cited authors by the SE literature and stands as one of the most influential author within the business/marketing area – he has received, up to august 2017, 2641 citations and presents a quite high h-index, 27, meaning that 27 of his publications have received 27 or more citations. This latter reflects both his productivity and scientific influence. Most of the authors presented in Table 4 are affiliated with developed countries as USA, UK, Canada or Finland, highlighting the USA as the country with most authors affiliated with their universities. The main subject of area worked by the authors are, without any surprise, 'Computer Science', 'Business, Management and Accounting' and 'Social Sciences'.

[6] See http://schulich.yorku.ca/faculty/russell-w-belk/, accessed on August 2017.

Table 4: The top 30 most cited authors by the SE literature (ordered by number of citations)

Rank	Author's Name	Affiliation	Number of citations by SE articles*	Total citations in Scopus**	h-index (Scopus)	Main subject area
1	Russel Belk	York University (Canada)	104	3641	27	Marketing
2	Rachel Botsman	Collaborative Lab (USA)	95	27	2	Sharing Economy
3	Roo Rogers	Redscout Ventures (USA)	76	21	-	Sharing Economy
4	Susan Shaheen	University of California System (USA)	44	1410	21	Engineering
5	Giana Eckhardt	Royal Holloway University of London (UK)	40	661	11	Business, Management and Accounting
6	Juho Hamari	Tampere University of Technology (Finland)	39	1391	47	Computer Science
7	Fleura Bardhi	City University London (UK)	37	420	16	Business, Management and Accounting
8	Juliet Schor	Boston College (USA)	36	726	31	Social Sciences
9	Jeremiah Owyang	Aviza Technology, Inc. (USA)	27	19	-	-
10	Louise Rose	University of South Carolina (USA)	25	1041	150	Medicine
10	Mimmi Sjöklint	Copenhagen Business School (Denmark)	25	43	4	Computer Science
12	Nicholas John	Hebrew University of Jerusalem (Israel)	24	3	3	Social Sciences
12	Cait Lamberton	University of Pittsburgh (USA)	24	289	29	Business, Management and Accounting
12	Davide Proserpio	Universita degli Studi di Milano (Italy)	24	13840	150	Chemistry
12	Antti Ukkonen	Tyoterveyslaitos (Finland)	24	361	10	Computer Science
16	Yochai Benkler	Harvard Law School (USA)	23	1688	46	Computer Science
16	Lisa Gansky	NA (NA)	23	NA	-	Engineering
16	Arun Sundararajan	Universiti Kebangsaan Malaysia (Malaysia)	23	193	17	Social Sciences
16	Georgios Zervas	University College London (UK)	23	1653	21	Computer Science
20	John Byers	Boston University (USA)	22	3718	26	Computer Science
20	Lucie Ozanne	University of Canterbury (New Zealand)	22	960	17	Business, Management and Accounting
22	Lis Tussyadiah	Washington State University Vancouver (USA)	21	404	-	-
23	Vittorio Bellotti	Palo Alto Research Center Incorporated (USA)	20	3433	41	Biochemistry, Genetics and Molecular Biology
23	Gill Seyfang	University of East Anglia (UK)	20	2165	2	Social Sciences
25	Airi Lampinen	Mobile Life Centre (Sweden)	17	316	8	Computer Science
26	Magnus Henrekson	Research Institute of Industrial Economics (NA)	16	1921	22	Economics, Econometrics and Finance
26	Lilly Irani	University of California (USA)	16	670	11	Computer Science
28	Coye Cheshire	UC Berkeley (USA)	15	501	13	Computer Science
28	Frank Geels	Manchester Business School (UK)	15	7132	33	Business, Management and Accounting
28	Katherine Gibson-Graham	Western Sydney University (Australia)	15	1497	18	Social Sciences
28	Daniel Guttentag	Ryerson University (Canada)	15	284	4	Business, Management and Accounting
28	Edward Martin	UC Berkeley (USA)	15	458	44	Medicine
28	Jeremy Rifkin	NA	15	NA	4	Social Sciences
28	Adam Smith	University of Sussex (UK)	15	4341	29	Computer Science

Note: * the reference date for citation data extraction is 5th of August ** Scopus citations extracted on 5th of August

4.2.3. Most cited studies by SE literature

The documents published on SE cite a large number of studies – precisely 6863 distinct studies. However, only a meagre fraction receives a reasonable number of citations by SE literature. Indeed, 19 studies (9.5% of the total) received 10 or more citations by the SE literature (see Table 5). Two of these studies are considered two major roots for SE literature (which received more than 30 citations) and are edited in two renowned journals indexed in the two scientific databases (Scopus and WoS): *Journal of Business Research* and *Journal of Consumer Research*. The authors of these two studies are present in the top 30 most cited authors by the SE literature, Russel Belk is first in the list and the other two (Fleura Bardhi and Giana Eckhardt) are also in the top 10 (see Table 5).

In the top, most cited studies of the SE literature (Table 5), in the first place is the book by Rachel Botsman and Roo Rogers, *What's Mine Is Yours: The Rise of Collaborative Consumption*. This book is considered one of the most influential books on SE and especially on collaborative consumption. Besides being a very important book in this area, it is also considered one of the roots on SE. The authors of this book are very renowned practitioners, being also presented in the top 30 most cited authors of the SE literature (see Table 4). The number of citations by SE articles of these two authors are more than 100 and the main subject area of research is 'Sharing Economy'. This book is also in the top journal/source cited by SE literature according to their subject area (see Table 6).

Of the few articles among the top studies from the SE literature, the most cited (among the articles) is by Russel Belk ("You are what you can access: Sharing and collaborative consumption online") published in the *Journal of Business Research* (2014). It is one of the most cited articles with 33 citations received by SE literature and 156 in Scopus and it is also a seminal paper in SE studies and is one of the most cited and influential articles on SE (see Table 2).

Table 5: **The top most cited studies by the SE literature (ordered by number of citations received by SE literature)**

Rank	Year of publication	Authors	Title	Number of citations received by SE literature	Number of citations in Scopus [WoS]**
1	2010	Rachel Botsman and Roo Rogers	*What's Mine Is Yours: The Rise of Collaborative Consumption*, New York: Harper Collins Publisher	64	-[-]
2	2014	Russel Belk	You are what you can access: Sharing and collaborative consumption online, *Journal of Business Research*, 67 (8), 1595-1600 [IF2015: 2.129, Q2, Business]	33	156 [109]
3	2012	Fleura Bardhi, Giana Eckhardt	Access-Based Consumption: The Case of Car Sharing *Journal of Consumer Research* [IF2015: 3.187, Q1, Business]	32	165 [115]
4	2013	Russel Belk	Sharing *Journal of Consumer Research* [IF2015: 3.187, Q1, Business]	27	279 [224]
5	2012	Cait Lamberton, Lawrence Rose	When Is Ours Better Than Mine? A Framework for Understanding and Altering Participation in Commercial Sharing Systems *Journal of the Association for Information Science and Technology* [IF 2015: 2.322, Q2, Computer Science]	23	67 [52]
6	2016	Juho Hamari, Mimmi Sjöklint, Antti Ukkonen	The sharing economy: Why people participate in collaborative consumption *Journal of the Association for Information Science and Technology* [IF2015: 2.322, Q2, Computer Science]	21	44 [30]
7	2007	Russel Belk	Why not share rather than own? *The Annals of the American Academy of Political and Social Science* [IF2015: 1.430, Q1, Social Sciences]	20	112 [-]
8	2014	Georgios Zervas, Davide Proserpio, John Byers	The Rise of the Sharing Economy: Estimating the Impact of Airbnb on the Hotel Industry *Journal of Marketing Research* [IF2015: 3.655, Q1, Business]	19	-[-]
8	2010	Lisa Gansky	The Mesh: Why the Future of Business is Sharing, New York: Penguin	19	-[-]
10	2015	Daniel Guttentag	Airbnb: disruptive innovation and the rise of an informal tourism accommodation sector *Current issues in Tourism* [IF2015: 2.451, Q2, Hospitality, Leisure, Sport & Tourism]	15	43[30]
11	2004	Yochai Benkler	Sharing Nicely: On Shareable Goods and The Emergence of Sharing as a Modality of Economic Production *Yale Law Journal* [IF2015: 2.848, Q1, Social Sciences]	14	43 [143]
11	2013	Nicholas John	The Social Logics of Sharing *The Communication Review* [NA]	14	43 [42]
13	2013	Nicholas John	Sharing and Web 2.0: The Emergence of a Keyword *New media and society* [IF2015: 2.048, Q1, Social Sciences]	13	83 [47]
14	2014	Russel Belk	Sharing versus pseudo-sharing in web 2.0 *Anthropologist* [IF2015: 0.195, Q4, Anthropology]	12	40 [28]

14	2013	Jeremiah Owyang, Christine Tran, Chris Silva	*The Collaborative Economy: Products, Services and Market Relationships Have Changed as Sharing Startups Impact Business Models. To Avoid Disruption, Companies Must Adopt the Collaborative Economy Value Chain*, Altimeter Research Theme: Digital Economies	12	-[-]
14	2015	Lucia Reisch, John Thøgersen	*Handbook of Research on Sustainable Consumption*, UK: Edward Elgar	12	-[-]
17	2016	Juho Hamari, Mimmi Sjöklint, Antti Ukkonen	Beyond Zipcar: Collaborative Consumption *Harvard Business Review* [IF2015: 2.249, Q2, Business]	10	21 [15]
17	1978	Marcus Felson, Joe Spaeth	Community Structure and Collaborative Consumption - Routine Activity Approach *American Behavioral Scientist* [IF2015: 1.129, Q1, Psychology]	10	22 [35]
17	2014	Bernard Cohen, Jan Kietzmann	Ride On! Mobility Business Models for the Sharing Economy *Organization and Environment* [IF2015: 2.650, Q1, Business]	10	45 [28]

Note: ** citations gathered on 5tn August 2017.

In the top most cited studies by the SE literature (Table 5), in the first place is the book by Rachel Botsman e Roo Rogers (*What's Mine Is Yours: The Rise of Collaborative Consumption*). This book is considered one of the most influential books on SE and specially on collaborative consumption. Besides being a very important book in this area, it is also considered one of the roots on SE. The authors of this book are very renowned authors represented in the top 30 most cited authors by the SE literature (see Table 4). The number of citations by SE articles of these two authors are more than 100 and the main subject area of research is 'Sharing Economy'. This book is also in the top journal/source cited by SE literature according to their subject area (see Table 6).

Of the few articles among the top studies from the SE literature, the most cited (among the articles) is by Russel Belk ("You are what you can access: Sharing and collaborative consumption online") in the Journal of Business Research (2014). It is one of the most cited articles with 33 citations received by SE literature and 156 in Scopus and it is also a seminal paper in SE studies and is one of the most cited and influential articles on SE (see Table 2).

4.2.4. Most cited source titles by SE literature

Based on the analysis of the top cited studies and authors it is possible to prove that the roots of the SE literature lie straight within innovation, sharing and collaborative economy studies. However, when analyzing the citations of journals and their

corresponding scientific area SE related studies tend to cite other studies published in high–impact factor journals from two different areas as 'Business', 'Computer Science' and residual areas as 'Hospitality, Leisure, Sport & Tourism', 'Law', 'Communication, Arts and Humanities' and 'Psychology'.

Half of the total journal citations is made to outlets from the business, management and accounting fields, particularly to *Journal of Consumer Research*, the most cited journal by SE literature with 106 citations received by SE literature.

Considering Scopus areas, 'Business, Management and Accounting', 'Computer Science' and 'Social Sciences' are the most frequently fields of research of the scientific source of SE literature. From Table 6 it is also possible to analyze the quality of the journals (using their impact factor). The great majority of the outlets are indexed to scientific databases and are well renowned belonging to Quartile 1 of the corresponding subject areas.

Table 6: **Top journal/source cited by SE literature according to their subject area (order by number of citations)**

Source Title	WoS Area	IF2015	Scopus Area	SJR	Number of citations received by SE literature	Type of Source
Journal of Consumer Research	Business (Q1)	3.187	-	-	106	Journal
Journal of Product Innovation Management	-	-	Business, Management and Accounting (Q1)	3.086	87	Journal
Journal of Marketing	-	-	Business, Management and Accounting (Q1)	0.859	69	Journal
Management Science	Operations Research and Management Science (Q1)	2.822	Business, Management and Accounting (Q1)	3.885	64	Journal
What's Mine Is Yours: The Rise of Collaborative Consumption	-	-	-	-	64	Book
Journal of Business Research	Business (Q2)	2.129	Business, Management and Accounting (Q1)	1.682	49	Journal
Harvard Business Review	Business (Q2)	2.249	Business, Management and Accounting (Q2)	0.401	49	Journal
Annals of Tourism Research	-	-	Social Sciences (Q2)	2.658	49	Journal
Journal of Consumer Behaviour	Business (Q3)	1.022	Psychology (Q2)	0.940	44	Journal
MIS Quarterly: Management Information Systems	Computer Science,	7.268	Business, Management and Accounting (Q1)	6.687	42	Journal

	Information Systems (Q1)					
Journal of Marketing Research	Business (Q1)	3.654	Business, Management and Accounting (Q1)	6.319	42	Journal
Academy of Management Review	Business (Q1)	9.408	Business, Management and Accounting (Q1)	8.041	39	Journal
Tourism Management	Environmental Studies (Q1)	3.140	Business, Management and Accounting (Q1)	2.450	38	Journal
Conference on Human Factors in Computing Systems - Proceedings	-	-	Computer Science (-)	0.407	38	Conf. Proceedings
American Economic Review	Economics (Q1)	4.026	Economics, Econometrics and Finance (Q1)	10.49	37	Journal
Academy of Management Journal	Business (Q1)	7.417	Business, Management and Accounting (Q1)	10.346	37	Journal
Communications of the ACM	Computer Science (Q3)	0.496	Computer Science (Q1)	1.910	35	Journal
Progress in Human Geography	Geography (Q1)	5.776	Social Sciences (Q1)	3.589	32	Journal
Forbes	Business, Finance (Q1)	2.151	-	-	32	Journal
Journal of Cleaner Production	Environmental Engineering (Q1)	4.959	Business, Management and Accounting (Q1)	1.721	31	Journal
Ecological Economics	Ecology (Q2)	1.712	Economics, Econometrics and Finance (Q1)	2.965	29	Journal
New Media and Society			Social Sciences (Q1)	2.084	26	Journal
Proceedings of the ACM Conference on Computer Supported Cooperative Work, CSCW	-	-	Computer Science (Q4)	0.455	25	Conf. Proceedings
Organization Studies	Management (Q1)	2.860	Business, Management and Accounting (Q1)	3.107	24	Journal
New York Times	-	-	-	-	24	Journal
Long Range Planning	Business (Q1)	3.547	Business, Management and Accounting (Q1)	2.697	24	Journal
Journal of Travel Research	Hospitality, Leisure, Sport & Tourism (Q1)	4.564	Business, Management and Accounting (Q1)	3.040	24	Journal
Lecture Notes in Computer Science	Computer Science, Theory & Methods (Q4)	0.402	Computer Science (Q2)	0.315	23	Lecture Notes
Journal of the Association for Information Science and Technology	Computer Science, Information Systems (Q2)	2.322	Computer Science (Q1)	1.265	22	Journal

Computers in Human Behavior	Psychology Multidisciplinary (Q1)	3.435	Arts and Humanities (Q1)	1.595	22	Journal
Annals of The American Academy of Political and Social Science	Political Science (Q1)	2.118	Social Sciences (Q1)	1.430	22	Journal
Current Issues in Tourism	Hospitality, Leisure, Sport & Tourism (Q2)	2.451	Business, Management and Accounting (Q1)	1.232	21	Journal
Strategic Management Journal	Business (Q1)	4.461	Business, Management and Accounting (Q1)	7.651	20	Journal
Fast Company	-	-	-	-	20	Journal

With this analysis, it is possible to conclude that there is a clear pattern in the scientific roots of the SE literature. SE Literature has a multi-disciplinary trait and a vast crossroad of concepts and analytical methods from the 'Business', 'Management and Accounting', 'Computer Science' and 'Hospitality, Leisure, Sport and Tourism'.

4.3. The scientific influence of the SE literature

Analyzing the 470 studies that cite the SE literature, they belong to (using their Scopus sources' research area) a myriad of areas. About 30% are conference papers/proceedings papers, the most frequent areas are 'Computer Science' (56%), 'Business, Management and Accounting' (17%), 'Social Sciences' (8%), 'Tourism' (6%), 'Design' (6%), 'Earth and Planetary Sciences' (2%), 'Law and Politics' (2%), 'Marketing' (2%) and Engineering (2%). Regarding those documents associated to journals, the most frequent areas are 'Business, Management and Accounting' (38%), 'Computer Science' (24%), 'Social Sciences' (11%), 'Environmental Science' (6%), 'Engineering' (4%), 'Arts and Humanities' (3%), 'Psychology' (3%), 'Agricultural and Biological Sciences' (3%), 'Earth and Planetary Sciences' (2%), 'Energy' (2%), 'Agriculture and Human Values' (1%), 'Decision Sciences' (1%), 'Economics, Econometrics and Finance' (1%), 'Mathematics' (1%), 'Medicine' (1%) and 'Multidisciplinary' (1%).

From the 199 documents published on SE, 41% received one or more citations.[7] Of the total, only 1% received more than 30 citations, 4% received between 10 and 29 citations,

[7] The period of reference for this data gathering from Scopus/WoS and the SE bibliographic databases is 9 May 2017.

6% received between 5 and 9 citations, 11% received between 2 and 4 citations, and finally 7% received 1 citation.

A small number of articles (12, that is, 10% of the total) might be considered relatively highly influential in the sense that they were cited 10 times or more by other studies. The 12 highly influential articles (see Table 4) are theoretical (50%) (e.g., Belk, 2014b; Ikkala et al., 2015) and empirical (50%) (e.g., Molz, 2013; Dillahunt et al., 2014), addressing topics such as 'Networks/cooperation/collaborative patterns' (e.g., Dillahunt et al., 2014; Martin, 2016), 'Technology implementation/ management' (e.g., Molz, 2013; Meleo, Romolini, and De Marco, 2016), 'Business models related issues' (e.g., Choi, Cho, Lee, Hong and Woo 2014; Hamari et al., 2016), 'Regulatory/law related issues' (e.g., Hartl, Hofmann, Kirchler, 2016; Lougher et al., 2016), and 'Behavioral, cultural, social impacts and ethical issues' (e.g., Ikkala et al., 2015; Ert et al. 2016).

Among the most cited documents, "You are what you can access: Sharing and collaborative consumption online" (Belk, 2014b), "How traditional firms must compete in the Sharing Economy" (Cusumano, 2015), and "The sharing economy: Why people participate in collaborative consumption" (Hamari et al., 2016) are included in the topic 'Business models related issues', exploring new business models related with SE. Specifically, they contend the reasons for the current growth in these new business models and their implications for businesses still using traditional models of sales and ownership, it is also discussed how existing business models are affected by the sharing economy.

"Ride On! Mobility business models for the sharing economy" (Cohen et al., 2014), "Sharing economy: A potential new pathway to sustainability" (Heinrichs, 2014), and "The promise of the sharing economy among disadvantaged communities" (Dillahunt et al., 2014) are included in the 'Networks/ cooperation/ collaborative patterns' topic. These papers explore issues as online peer-to-peer economic activities as rental (Airbnb), ride services (Uber), and gifting (Freecycle) (Martin, 2016). Is also mentioned that consumers are interested in leasing and sharing instead of buying and owning products (Matzler et al., 2015).

Referring to the 'Technology implementation/management' topic, we have "Social networking technologies and the moral economy of alternative tourism: The case of couchsurfing.org" (Molz, 2013) and "Conceptual foundations for understanding smart tourism ecosystems" (Gretzel, Werthner, Koo and Lamsfus, 2015), which focus mainly

on how the technology is used to develop products that allow agents to collaborate with each other.

The motivation of individuals to monetize network hospitality and how the presence of money ties in with the social interaction related to network hospitality or the factors that influence guest's satisfaction with a peer-to-peer accommodation and their intention to use it again for future trips are the issues covered by "Working with machines: The impact of algorithmic and data-driven management on human workers" (Lee, Kusbit, Metsky and Dabbish, 2015) and "Monetizing network hospitality: Hospitality and sociability in the context of Airbnb" (Ikkala et al., 2015), which belong to 'Behavioral, cultural, social impacts and ethical issues' topic.

From Table 7 it is possible to analyze the quality of the journals (using their impact factor). One can highlight the journals 'Organization and Environment' and 'Computers in Human Behavior', which belong to Quartile 1 of the corresponding subject areas, and 'Journal of Business Research', which belong to Quartile 2. However, in general, the top cited articles are published in journals with relatively low scientific impact – *GAIA*, *Communications of the ACM*, *Journal of Consumer Behaviour* and *Annals of Tourism Research* – or in conferences proceedings. Others are not even indexed in the scientific databases (therefor does not have impact factor), because of this and from the scientific point of view these journals do not have a great impact. These journals are included in areas as 'Business, Management and Accounting', 'Arts and Humanities', 'Computer Science', 'Engineering' and 'Psychology'.

Table 7: Seminal SE documents

Year	Title	Authors	Journal	Journal Area	Journal IF 2016 and Quartile	Number of citations in Scopus/WoS
2014	You are what you can access: Sharing and collaborative consumption online	Belk R.	Journal of Business Research	Business, Management and Accounting	2.129 (Q2)	108
2014	Ride On! Mobility Business Models for the Sharing Economy	Cohen B. & Kietzmann J.	Organization and Environment	Business, Management and Accounting	2.650 (Q1)	28
2013	Sharing economy: A potential new pathway to sustainability	Heinrichs H.	GAIA	Arts and Humanities	0.878 (Q3)	16
2013	Social networking technologies and the moral economy of alternative tourism: The case of couchsurfing.org	Molz J.G.	Annals of Tourism Research	Business, Management and Accounting	0.136 (Q4)	15
2015	Conceptual foundations for understanding smart tourism ecosystems	Gretzel U., Werthner H., Koo C., Lamsfus C.	Computers in Human Behavior	Arts and Humanities	2.880 (Q1)	14

2015	Working with machines: The impact of algorithmic and data-driven management on human workers	Lee M.K., Kusbit D., Metsky E., Dabbish L.	Conference on Human Factors in Computing Systems - Proceedings	Computer Science	-	13
2015	How Traditional Firms Must Compete in the Sharing Economy	Cusumano M.A.	Communications of the ACM	Computer Science	0.496 (Q3)	12
2015	The promise of the sharing economy among disadvantaged communities	Dillahunt T.R., Malone A.R.	Conference on Human Factors in Computing Systems - Proceedings	Computer Science	-	11
2016	Gamification in crowdsourcing: A review	Sjöblom M., Törhönen M., Hamari J., Macey J.	Proceedings of the Annual Hawaii International Conference on System Sciences	Engineering	-	11
2015	Collaborative consumption: determinants of satisfaction and the likelihood of using a sharing economy option again	Möhlmann M.	Journal of Consumer Behaviour	Psychology	1.022 (Q3)	11
2016	The sharing economy: Why people participate in collaborative consumption	Hamari, J., Sjöklint, M., Ukkonen, A.	Journal of the Association for Information Science and Technology	Computer Science	2.322 (Q2)	11
2015	Monetizing network hospitality: Hospitality and sociability in the context of Airbnb	Ikkala, T., Lampinen, A.	CSCW 2015 - Proceedings of the 2015 ACM International Conference on Computer-Supported Cooperative Work and Social Computing	Computer Science	-	10

Source: Own computation based on data gathered from Scopus/WoS on 9th of May.

In Table 8 is possible to observe the source titles that cite SE literature, the overall source titles are distributed, in terms of type, as follows: 12 journals and 10 conference proceedings, the large number of conference proceedings is likely to reflect the relatively newness and emergence of the field.

Table 8: Source titles that cite SE literature

Source Title	WoS Area	IF2015	Scopus Area	SJR	Number of times citing SE literature	Type of Source
Proceedings of the ACM Conference on Computer Supported Cooperative Work, CSCW	-	-	-	-	22	Conf. Proceedings
Journal of Business Research	Business (Q2)	2.129	Business, Management and Accounting Marketing (Q1)	1.682	16	Journal
International Journal of Hospitality Management	Hospitality, Leisure, Sport & Tourism (Q1)	2.061	Business, Management and Accounting (Q1)	1.887	14	Journal
ACM International Conference Proceeding Series	-	-	-	-	13	Conf. Proceedings

Conference on Human Factors in Computing Systems - Proceedings	-	-	-	-	13	Conf. Proceedings
Information Technology and Tourism		-	-	-	10	Journal
AMCIS 2016: Surfing the IT Innovation Wave - 22nd Americas Conference on Information Systems	-	-	-	-	8	Conf. Proceedings
Annals of Tourism Research	Hospitality, Leisure, Sport & Tourism (Q1)	2.275	Business, Management and Accounting (Q1)	2.658	8	Journal
Ecological Economics	Economics, Econometrics and Finance (Q1)	1.733	Ecology (Q2)	3.227	8	Journal
Proceedings of the Annual Hawaii International Conference on System Sciences	-	-	-	-	8	Conf. Proceedings
Computers in Human Behavior	Experimental Psychology (Q1)	2.88	Arts and Humanities (Q1)	1.646	7	Journal
Journal of Cleaner Production	Environmental Engineering (Q1)	4.959	Business, Management and Accounting (Q1)	1.721	7	Journal
23rd European Conference on Information Systems, ECIS 2015	-	-	-	-	6	Conf. Proceedings
Multikonferenz Wirtschaftsinformatik, MKWI 2016	-	-	-	-	6	Conf. Proceedings
Pacific Asia Conference on Information Systems, PACIS 2016 - Proceedings	-	-	-	-	6	Conf. Proceedings
Public Relations Review	Business, Management and Accounting (Q2)	0.799	Business (Q3)	1.249	6	Journal
PICMET 2016 - Portland International Conference on Management of Engineering and Technology: Technology Management for Social Innovation, Proceedings	-	-	-	-	6	Conf. Proceedings
Proceedings - 2016 IEEE 1st International Conference on Data Science in Cyberspace, DSC 2016	-	-	-	-	5	Conf. Proceedings
Business and Information Systems Engineering	-	-	-	-	5	Journal
Business Horizons	Business, Management and Accounting (Q1)	0.726	Business (Q3)	1.008	5	Journal
Journal of Marketing Management	Business, Management and Accounting (Q1)	0.859	-	-	5	Journal
Organization and Environment	Business, Management	0.727	Environmental Studies – SSCI (Q1)	2.650	5	Journal

	and Accounting (Q2)

Source: Own computation based on data gathered from Scopus/WoS on 9th of May

All of the journals mentioned on Table 5 are indexed on Scopus or Wos databases, having thus an impact factor or a Scimago journal ranking. Comparing the journals presented in Table 5 and the most important outlets of SE literature (Table 3) there are quite a similarity between those two tables. Journals as *International Journal of Hospitality Management*, *Journal of Cleaner Production*, *Computers in Human Behaviour* and *Journal of Business Research* are also present in the most important outlets of SE literature (see Table 3). From this it is possible to conclude that the literature is somehow self-referential, meaning that the scope of scientific influence of the SE literature is mainly confine to the area where SE belongs.

The geographical influence of SE literature (measured by the citations to SE) is quite widespread, embracing 803 distinct authors and co-authors, who are affiliated to distinct organizations located in 47 different countries. The USA (19%), the United Kingdom (10%), Germany (10%), China (8%), Australia (8%), and Switzerland (5%) are the countries where the institutions of authors that cite SE literature are located (see Figure 10).

Figure 10: **Assessing the geographical influence of SE seminal articles**
Source: Own elaboration.

5. Conclusion

5.1. Main results and contribution of the study

Giving the novelty and the uncertain scientific boundaries of SE it was performed a quantitative/bibliometric description of the state-of-the-art of the literature on SE, by explicitly addressing its roots, evolution and scientific influence/impact.

The evolution over time of articles published on SE has been slightly irregular, although in the past five years the field has experienced a huge growth. Research on SE gained relevance in the scientific sphere in 2006, and since then the publications on SE did not stop growing, inducing a pick in 2016 and still growing. This certainly reveals a great interest in the matter of SE, since it is a new filed of research due to the new business models based on this subject.

The SE approach remains more theoretical than empirical gowned due to the novelty of the field. Nevertheless, empirical contributions had also experienced a huge increase in 2016, related to the possible consolidation of the field.

SE studies encompass topics as 'Networks/cooperation/collaborative patterns', 'Technology implementation/ management', 'Business models related issues', 'Regulatory/law related issues', 'Behavioral, cultural, social impacts and ethical issues', and a residual category, 'Others'. Although the most interesting case to notice is the publications on 'Business models' related issues, that began to emerge only in 2015 mostly explained by the changes that incumbent companies that needed to adapt to compete in this 'new economic framework'. Other interesting finding is 'Regulatory/ law' related issues started to be mentioned in 2014 due to the regulatory challenges faced by the entrance and growth of companies that about this business model (Uber and Airbnb).

Most of the articles published on SE have been concentrated in the reality of developed countries such as the USA, UK, Germany, Australia, Switzerland and China. Less developed countries from Africa, the Middle East or South America are barely or not mentioned at all in this matter. Therefore, issues as SE, collaborative consumption, technology and innovation, are fare from been used and adopted in these countries, as expected.

In terms of identifying the roots of SE, Russell Belk, Rachel Botsman and Roo Rogers emerge as its founding parents. Despite the undeniable relevance of these authors in the

emergence and development of the SE and collaborative consumption concepts, we have to highlight the special contribution that Russell Belk gave to SE with two very important documents: "You are what you can access: Sharing and collaborative consumption online" and "Sharing versus pseudo-sharing in Web 2.0". The two major scientific roots of SE literature were published in 2014 and 2012, respectively: "You are what you can access: Sharing and collaborative consumption online" (Belk, 2014b) and "Access-based consumption: The case of car sharing" (Bardhi and Eckhardt, 2012). The analysis of the roots of SE literature has highlighted a clear multi-disciplinary pattern and an immense crossroads of concepts and analytical methods from the 'Business, Management and Accounting', 'Computer Science' and 'Hospitality, Leisure, Sport and Tourism'.

The influence of SE literature, measured by the citations to SE seminal articles, is quite widespread geographically, encompassing 47 countries worldwide (including USA, UK, Germany, China, Australia, and Switzerland). The SE literature has a substantial impact on other literatures such as 'Business, Management and Accounting', 'Arts and Humanities', 'Computer Science', 'Engineering' and 'Psychology'.

The bibliometric exercise performed contributes for the clarification of the intellectual boundaries of this still very fuzzy stream of research.

5.2. Limitations of the study

This work has some noteworthy limitations. Those limitations are related to the fact that we are using only the documents indexed in the Scopus and WoS databases to gauge the influence/scientific impact of the field. These databases only contain journal articles leaving out the books, which is a problem in certain areas of research such as SE whose roots rely substantially on books and other non-indexed references.

There is also a limitation related to the usage of impact factors associated namely to Scopus and WoS to gauge the impact of the scientific areas. Scientific quality/impact and number of citations might not be synonymous given the limitations inherent to the underlying indicators and data sources used (Waltman, 2016).

5.3. Paths for future research

Future research paths, seeking to overcome the above mentioned limitations, could entail the analysis the documents gathered from Google Scholar (namely using Publish or Perish software). Although is it important to notice that this database is not free of limitations-risk of citation manipulation and difficulty to assess quality (Halevi, Moed and Bar-Ilan, 2017) – it permits to include distinct sources (e.g., books, reports) that might be crucial for establishing the intellectual boundaries of some areas.

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